DEPARTMENT OF TELECOMMUNICATIONS & ENERGY

June 5, 2002

Stephen H. August, Esq.
Keegan, Werlin & Pabian, LLP
10 Custom House Street
Boston, MA 02110

Dear Mr. August:

Enclosed is the Second Set of Information Requests of the Department of Telecommunications and Energy to NSTAR Gas Company ("NSTAR"). NSTAR shall have ten days from the receipt of the attached discovery in which to respond.

Should you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Denise L. Desautels
Hearing Officer

cc: Mary L. Cottrell, Secretary
Service List, D.T.E. 02-12

Commonwealth of Massachusetts
Department of Telecommunications and Energy

Second Set of Information Requests
NSTAR Gas Company, D.T.E. 02-12

Introduction:

The following questions refer to NSTAR Gas Company's ("NSTAR" or "Company") Filing ("Filling") regarding the Company's Load Forecast and Resource Plan for the period 2001/02 through 2005/06 in D.T.E. 02-12.

D.T.E. 2-1 Please refer to the Company's response to DTE 1-19 (a). It states that estimate of the variable D97 has a "t" value of 1.52 that indicates a level of significance between 5% and 10% for 10 degrees of freedom and that the P-value of .151 indicates a confidence level of 85%. Could the Company explain that contradiction?

D.T.E. 2-2 Before producing forecasts, the model is tested for statistical validity and the forecasts are evaluated for reasonableness. The estimated models can be easily used for simulating the impact of various scenarios an hence in developing alternative forecasts (see the Company's responses to DTE 1-14). In evaluating the significance of the independent variables, in the majority of the cases a 5% significance test was used. In some equations a 10% significance test was used if the model looked reasonably sound (see the Company's responses to DTE 1-15 (e) and D.T.E. 1-17(a)). In this view, please:

(a) justify the use of a more than 10% significance level in the estimates of the following variables: D97 (see p. B.13); D0006 (see p. B.55 and p. B.21); D9906 (see p. B.42); D99 (see p. B.21); D98 (see p. B. 52); cghh (see p. B.9); D9899 (see p. B. 24) cgesrv (see p. B.1); cgemnt (see p. B.5); ngemnt (see p. B. 33) wremnt (see p. B.47); nghhsz (see p. B.42) and, trend (see p. B.4, B.18, B.32, B.46, B.8 and p. B.50);

(b) discuss how confident the Company is on its forecast and simulation aforementioned above when using variables whose estimates exhibit greater than 10% significant level.

D.T.E. 2-3 The Company states that D97 is a point dummy variable to account for the first year of the forecast for industrial firm transportation in Cambridge (see the Company's response to DTE 1-38 (a)). In addition, the Company states that the dummy variable D9706 accounts for retail unbundling started in 1997 for industrial customers in Worcester (see the Company's response to DTE 1-35 (g)). In this regard, please:

(a) specify and discuss the values taken by the dummy variables along the time series and the forecast period 2002-2006;

(b) discuss the positive sign of the estimates of these variables;
(c) The Company created aggregate historical sales data from 1978 through 2000 by adding back the effects of DSM, transportation service and others (see p. 34 of the Company's filing). Since the transportation effect is already included in the dependent variable, what did the Company exactly try to capture by the dummy variables D97 and D9706 in their respective models?

D.T.E. 2-4 In reference to the Residential Heating Sales Model for the Worcester Division (see the Company's response to DTE 1-19 (d) and see p. 55 of the Company's filing) and Industrial Customer Model for New Bedford (see the Company's response to DTE 1-35 (f)), please:
(a) discuss and specify the values taken by the dummy variable D0006 (conversions from oil to natural gas occurred in 2000) for the forecast period 2002-2006.
(b) indicate whether the Company is projecting more conversions from oil to gas during the forecast period? Please support your response.

D.T.E. 2-5 The Company retained the variables D0006 (see DTE 1-19(d)); D9906 (see DTE1-25(b)); D9899 (see DTE1-32(d));"cgemnt" (see DTE 1-35 (b)) in the models because these variables improved the overall fit of the models. Could the Company explain what is meant by improved fit and show exactly how the overall fit improved by retaining those variables with statistical significant level greater than 10%.

D.T.E. 2-6 Please refer to the Company's response to DTE 1-15 (f) and DTE 1-15 (g). It is stated that one of the basic OLS assumptions is the constant variance of the residuals and that the tests for it were not conducted due to the limited number of observations. In this regard,
(a) how many observations the Company would need to test for homoscedasticity?
(b) explain why the Company believes that 11 observations are enough to do a regression analysis but not enough to test for homoscedasticity;
(c) explain the effects of a non-constant variance of residuals on the overall fit of the model, level of significance of the estimates and overall validity of the forecast;
(d) discuss how confident the Company is regarding its forecast and simulation mentioned (see DTE 2-2) when using models that have not been tested for constant variance in errors;
(e) please, perform a test for homoscedasticity in the models presented in DRI-WEFA's report (attachment 4, p. B.1 through p. B.56).

D.T.E. 2-7 Please refer to the Company's response to DTE 1-15 (f). It states that one of the basic OLS assumptions is that the sum of residuals is zero. In this regard please,

(a) discuss how the Company can be sure that this assumption is not violated;
(b) discuss the consequences of the violation of this assumption, in terms of the interpretation of the R^2 and forecast reliability (see the Company's response to DTE 1-25 (g)); is the R^2 between 0 and 1 when that assumption is violated?
(c) discuss the role of the intercept in a regression equation.

D.T.E. 2-8 Please refer to responses to DTE 1-34 (c) and DTE 1-45 (e). The Company states that serial correlation is not present in the models of the "number of commercial customers" and "commercial customers firm sales share" in Worcester division since the H-statistics is greater than the critical value at the 5% level. In this regard, please:
(a) formulate the null and alternative hypotheses of the tests performed by the Company;
(b) present two graphs, one for each of the tests, with the normal distribution. Please, pinpoint the critical values; H-statistics values and mark the rejection and non-rejection areas of the null hypotheses on each graph;
(c) draw the conclusions from each test;
(d) reestimate the models using the appropriate econometric model

D.T.E. 2-9 The Company states that the test for negative serial correlation is inconclusive since the number of observations in this equation is below the lowest number in the statistical table for the Durbin-Watson test (see DTE1-38 (e) and p. B.49 of the Company's filing). In this regard, please:
(a) formulate the null and alternative hypotheses for the autocorrelation test and state the number of observations and regressors in this equation;
(b) draw a line containing the extreme points values of the Durbin-Watson (0,4) and the critical values for the Durbin-Watson test at the 5% level. Please, mark on the line the rejection, non-rejection and inconclusive areas of the null hypothesis;
(c) draw the conclusion from the test;
(d) reestimate the model using the appropriate econometric procedure

D.T.E. 2-10 Please refer to the regression equations "Commercial Firm Sales Share" (see p. B.4, p. B.18, p. B.32 and p. B.46) and "Industrial Firm Sales Share" (see p. B.8, p. 22, p. B.36 and p. B.50),
(a) the Company states (see responses to DTE 1-40 (c) and DTE 1-43) that there are no bounds imposed in estimating these equations but that Firm sales share equals firm sales divided by the sum of firm sales and firm transportation. In addition, the Company states that prior to 1990, when all volumes were firms sales, the firm sales share equaled 1 and as customers migrated to firm transportation, firm transportation volumes increased and thus the firm sales share decreased. Consequently, are the dependable variables of the models: "Commercial Firm Sales Share" and "Industrial

Firm Sales Share" bound between 0 and 1?;

(b) following the Company's response to DTE 1-40 (c), please reestimate those equations using the appropriate econometric procedure.

D.T.E. 2-11 Please refer to the regression equations "Commercial Customers Firm Sales Share" (see p. B.2, p. B.16, p. B.30 and p. B.44) and "Industrial Customers Firm Sales Share" (see p. B.6, p. B.20, p. B. 34 and p. B.48),

(a) are the dependent variables of the models: "commercial customers Firm Sales share" and "industrial customers firm sales share" bound between 0 and 1? (see the Company's response to DTE 1-43);

(b) following the Company's response to DTE 1-45 (b), please reestimate those equations using the appropriate econometric procedure.

D.T.E. 2-12 Please indicate whether Hopkinton LNG Corp. has stored, liquefied, or gasified gas for the use of or on behalf of any customer(s) other than NSTAR Gas Company.